

Title (en)
HIGH CARBON STEEL PIPE HAVING EXCELLENT COLD WORKABILITY, MACHINABILITY, AND QUENCHING PROPERTIES, AND METHOD FOR MANUFACTURING SAME

Title (de)
HOCHKOHLENSTOFFHALTIGES STAHLROHR MIT AUSGEZEICHNETEN KALTVERFORMBARKEITS-, BEARBEITBARKEITS- UND ABSCHRECKUNGSEIGENSCHAFTEN UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)
TUBE D'ACIER À HAUTE TENEUR EN CARBONE DE CAPACITÉ D'ÉCROUISSAGE, D'USINABILITÉ ET DE TREMPABILITÉ EXCELLENTE, AINSI QUE PROCÉDÉ DE FABRICATION DE CELUI-CI

Publication
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Application
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Priority
JP 2012067138 W 20120628

Abstract (en)
Provided are a high-carbon electric-resistance-welded steel tube that combines superior cold workability, machinability, and hardenability and a method for manufacturing such a high-carbon electric-resistance-welded steel tube. Specifically, a high-carbon steel tube is provided as a raw steel tube. The raw steel tube has a composition containing, by mass, 0.25% to 0.60% carbon, 0.01% to 2.0% silicon, 0.2% to 3.0% manganese, 0.001% to 0.1% aluminum, 0.001% to 0.05% phosphorus, 0.02% or less sulfur, 0.0010% to 0.0100% nitrogen, 0.0003% to 0.0050% boron, and 0.0001% to 0.0050% calcium, the balance being iron and incidental impurities. The raw steel tube is heated to and soaked at an Ac 3 transformation point or higher and is then subjected to stretch-reducing rolling at a finishing temperature of rolling of 900 °C to (Ac 1 transformation point) with a cumulative reduction in diameter of 30% to 70% within the temperature range of 900 °C or lower. This allows the formation, without spheroidizing annealing, of a microstructure containing a ferrite phase and cementite grains dispersed therein that have an average grain size d of 0.1 to less than 0.5 μm and an average distance L between surfaces of adjacent cementite grains of 0.5 to 10 μm. In particular, the steel tube has significantly improved machinability.

IPC 8 full level
C22C 38/00 (2006.01); **B21B 17/14** (2006.01); **B23K 11/08** (2006.01); **B23K 11/16** (2006.01); **B23K 13/02** (2006.01); **C21D 8/10** (2006.01); **C21D 9/08** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/38** (2006.01)

CPC (source: CN EP KR US)
B23K 11/08 (2013.01 - EP US); **B23K 11/16** (2013.01 - EP US); **B23K 13/025** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/10** (2013.01 - KR); **C21D 8/105** (2013.01 - CN EP US); **C21D 9/08** (2013.01 - CN EP KR US); **C22C 38/00** (2013.01 - CN); **C22C 38/001** (2013.01 - CN EP KR US); **C22C 38/002** (2013.01 - CN EP US); **C22C 38/02** (2013.01 - CN EP US); **C22C 38/04** (2013.01 - CN EP KR US); **C22C 38/06** (2013.01 - CN EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/16** (2013.01 - EP US); **C22C 38/38** (2013.01 - CN); **B21B 17/14** (2013.01 - EP US); **B23K 2101/06** (2018.07 - EP US); **B23K 2103/04** (2018.07 - EP US); **C21D 2211/003** (2013.01 - CN EP US); **C21D 2211/005** (2013.01 - CN EP US)

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CN113227423A; EP3901301A4

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